National Institute of Environmental Health Sciences

The impact of climate change on the future incidence of specified foodborne diseases in Ireland

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Abstract:

Background and Objective: Increases in mean temperatures may be expected in Ireland in coming decades as a result of climate change. The incidence of food-borne diseases may therefore be expected to rise. The purpose of this study is to quantify the future increases that may be expected in the incidence of salmonella, campylobacter, and Verocytogenic E. Coli. Methods: Data on the incidence of salmonella, campylobacter, and Verocytogenic E. Coli were obtained from the HPSC, and meteorological data were obtained from Met Eireann, for the years 2004-2008. The present relationship of these diseases to mean temperatures was established. Temperature outputs from the three global climate models were obtained and incorporated into the temperature-morbidity model established. To reduce systematic errors introduced by the modelling process, the output from the modelled baseline scenario was subtracted from the output of the future scenarios, and the differences in morbidity rates ascribed to the impacts of climate change. Morbidity outputs were established for three future time periods, 2010 to 2039, 2040 to 2069 and 2070 to 2099. Results: Increases in the incidence of the three food-borne diseases were quantified. Increases in the region of 2 percent and 3 percent in the incidence of salmonella and campylobacter respectively may be expected. Most significantly, increases of approximately 10 percent in the incidence of the serious diseases, Verocytogenic E. Coli may occur in coming decades. Conclusions: Food-borne disease is a significant cause of morbidity in Ireland; acute gastro-enteritis is one of the commonest reasons for visiting the family doctor in Ireland. In the absence of strict adherence to food hygiene practices, and as a result of temperature increases resulting from climate change, significant increases may be expected in the incidence of food-borne disease in Ireland.

Source:
http://journals.lww.com/epidem/Fulltext/2009/11001/The_Impact_of_Climate_Change_on_the_Future.686.aspx#

Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Food/Water Quality, Temperature

Food/Water Quality: Pathogen

Geographic Feature: ☑

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Ireland

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Campylobacteriosis, E. coli, Salmonellosis

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Outcome Change Prediction

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content